

Industrial Standardization

and Commercial Standards Monthly



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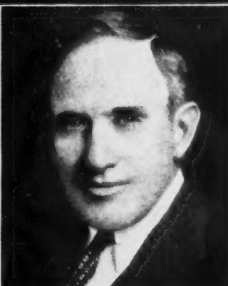
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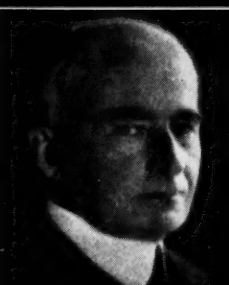
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American Standards Association Board of Directors

March

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1936

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AMERICAN STANDARDS ASSOCIATION

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Am. Home Economics Assn.
Am. Institute of Bolt, Nut & Rivet Mfrs.
Am. Institute of Elec. Engineers
Am. Iron & Steel Institute
Am. Petroleum Institute
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MARCH
1936

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No. 3

The American Standards Association

—What It Is Doing for Industry!

by

Dana D. Barnum¹

*President, American
Standards Association*

A MOTORIST from Kansas is traveling up Fifth Avenue. The light at the 42nd St. intersection turns red. He stops. When the light changes to green he moves on again. That, in short, is the story of standard colors for traffic signals; and the story of standardization itself.

Whether he is touring the continent, wintering in Florida, or just driving to the office, our motorist stops his car on the red light, drives full ahead on green, and "proceeds with caution" on yellow. This has become a habit with him. It has likewise become a habit of the forty million other people who, throughout the length and breadth of this land, drive motor cars. There is not one of them who at some time has not saved another motorist, or himself been saved from danger by the very uniformity of the traffic signals along the way.

Did this uniformity just happen, or was it planned?

It did not just happen. As recently as 1926, motorists on Fifth Avenue were stopping for the green light. Not only were red, green, yellow, and blue used for traffic signals, but orange and purple could also be found. Many different systems were in use in many different cities. To drivers today such a condition would be unthinkable; and the key that has changed all this is

standardization. The present nation-wide uniformity in traffic colors was brought about through the American Standards Association by its code of standard Colors for Traffic Signals.

Standardization is the habit-forming process of industry. It is the keynote of modern mass production which, since the turn of the century, has brought about the enormous increases in this country's capacity to produce goods. It has given us lamps that will fit any socket in the house, gas stoves that are safe and efficient, fire hose to fit any hydrant.

Were it not for company, group, and association standards, the motorist from Kansas would have small chance of owning a car at all. In

The American Standards Association is a federation of national groups dealing with standardization. Through it government, industry, labor, and the consumer work together in the development of mutually satisfactory standards.

It serves as a clearing house through which these groups unify their standardization efforts to form a single consistent set of American Standards.

It acts as the authoritative channel for international co-operation in standardization.

¹Mr. Barnum, president of the Consolidated Gas Company, Boston, Mass., has been a member of the ASA Board of Directors since 1933. He is past-president of the American Gas Association, which nominated him for membership on the Board.

ASA Library Serves Industry

Thousands of requests for information on standardization problems are received by the American Standards Association Library each year.

The ASA Library keeps a file of 14,000 foreign standards, specifications, and related material, probably the most complete in this country.

Some of the biggest companies in the United States are saved delay, and consequently thousands of dollars, through the use of this service in filling foreign orders that contain insufficient information.

This service is free to all Members.

fact there would be no traffic problem. For the overwhelming majority of car owners would be unable to pay the price which an automobile built without benefit of standardization would cost them; but which they can now afford.

Standardization begins and ends in the individual company.

The American Petroleum Institute has saved millions of dollars for its member companies through the standardization of oil-well equipment, enabling apparatus no longer needed in one field to be utilized in others.

The adoption of a standardized gage and a system of interchangeable brakes and couplings was a necessary step in the development of our railroad system.

The American Institute of Electrical Engineers brought order out of a chaotic commercial condition by establishing definite rules for the rating of electrical machinery.

Plumbing, lumber, steel, coal mining, telephony are but a few of the industries that have profited through the standardization activities of literally hundreds of trade and industrial associations. In addition, the Government, through its great technical and research agencies, notably the National Bureau of Standards and the Department of Agriculture, has played an extremely important role in the development of the movement.

With these hundreds of organizations issuing important standards with little systematic cooperation, the need for a clearing house became acute. Such an organization was set up in 1918. It is now known as the American Standards Association. It is essentially a federation of fifty-four

national organizations. Its purpose is to serve as a clearing house for the standardization movement in the United States.

To date, the American Standards Association has approved 335 standards. Five hundred national organizations—chiefly, trade associations, government bureaus, and technical societies—are participating in this work through the some three thousand representatives and technical experts now serving on committees charged with the development or revision of standards.

These standards cover a wide range of subjects: screw threads, motion picture film, pipe and pipe fittings, iron and steel tools, power machinery, and scores of others. They include dimensional standards, specifications, definitions of technical terms, ratings, building codes, and codes for the protection of workers from accidents and occupational diseases.

How Standards Are Made

The Kansas automobilist stopping to buy a wrench in Boston scarcely considers the possibility that it may not fit the bolts on his automobile rim. The wrench does fit. How are standards to produce such results brought about?

This, as well as the clearing-house nature of American Standards Association work, is well shown by the development of the bolt and nut standard. The technical committee in charge consisted of more than fifty men representing twenty national organizations. Like a miniature legislature set up along industrial lines it included every group affected by the finished standard. The use of bolts and nuts is the concern of so many industries that the committee had no easy task. One major issue which took a couple of years to solve resolved around a sixteenth of an inch in the width of the nut. Differences in the manufacturing processes involved led two companies to spend \$10,000 apiece on special machines to test the strength and wear of the nuts through simulated use. The smaller size was finally adopted, in this case without a dissenting vote.

Incidentally, this standard B18.2 has stimulated the export trade by setting measurements for the fit of wrenches the world over.

A project may be initiated by simple request to the American Standards Association on the part of any responsible group, member or non-member.

In most cases, the thoroughness and flexibility of American Standards Association procedure has resulted in a solution of the underlying problem rather than in mere compromise. Years of research, study, and discussion, and the expenditure of more than \$50,000 each by the U. S.

Bureau of Mines and the Canadian Department of Mines, have resulted in a standard classification of all varieties of coal. This simplifies and clarifies the selection of proper fuel for particular industrial uses.

By setting up standard methods of measurement for sound, and by settling upon a standard nomenclature, project Z24 is making a real contribution to the rapidly developing art of sound and noise control going forward today. This may well be compared to the work done half a century ago in establishing basic units, methods of measurement, and nomenclature in the electrical field. Those basic standards helped to develop the electrical industry with a rapidity never approached before.

Standards and the Consumer

During the last few years there has been an increasing demand on the part of consumer groups for standards and for the grade-labeling of goods sold at retail. Beginnings along these lines have already been made by the American Standards Association. The gas industry affords a splendid example of this work in its standard requirements for design and performance of gas burning appliances.

The American Gas Association maintains an excellent laboratory, which does the necessary research and testing. The standards are set up under ASA procedure by a committee representing the interested groups—manufacturers, operating companies, consumers, and government. Practically all newly designed gas appliances are submitted to this laboratory for tests, and those found to comply with the standards are marked by a "blue star" label of approval.

The whole undertaking has been highly successful. It has proved an important factor in the radical improvement of the majority of gas appliances now used. In fact, ninety per cent of the gas appliances made in this country now comply with these standards; and consumer satisfaction has led to an increase in sales all along the line.

The Set-Up of the Association

The ASA is a federation of national associations and government departments. Ultimate responsibility for the Association and its policies rests with its Member-Bodies, which include 40 national organizations. There are also 14 associate members, making 54 in all. Of these, nine are departments of the Federal Government, the rest national engineering and professional organizations and trade associations.

A Board of 16 experienced executives is in

American Standards and Projects Serve Industry

To date the American Standards Association has approved 335 standards.

The 229 new undertakings and revisions now under way represent a wide variety of subjects, from standards for screw threads to safety codes for the prevention of industrial diseases.

Five hundred national organizations are working on these projects.

Three thousand experts are serving on ASA committees.

charge of administration and financial affairs. These are chosen through nomination by selected member groups, rotation being provided for.

The Association also has the service of an Advisory Committee of "elder statesmen", each of whom is an executive of national prominence.

Supervision of the technical work, including official approval of standards, methods of procedure, etc., is in the hands of a Standards Council, composed of representatives of all the Member-Bodies.

The monthly publication, *INDUSTRIAL STANDARDIZATION*, is a news magazine covering standardization activities here and abroad.

International Cooperation

All the industrial countries of the world have found it necessary to set up national standardizing bodies like the ASA. There are now twenty-six such organizations. The ASA maintains systematic cooperative relations with all of these, and carries complete files of their standards. It is a member of the International Standards Association, through which the national bodies carry on their general cooperative activities. Through the ASA, American electrical industries participate in the work of the International Electrotechnical Commission. Through these and other means the Association makes available to American industry direct and authoritative contact with standardization developments in other lands.

The ASA as a Public Institution

The whole set-up of the Association is designed to enable it to operate in the public interest.

The greatest care is taken to make each approved standard or code represent a true national consensus of opinion of the groups substantially concerned with its scope and provisions.

Standards Magazine Serves Industry

INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY brings together news of standardization activities from all over the world. It combines technical information for the engineer with more popular treatment of the whole movement—its aims, methods, and personalities.

It is the only magazine in the country devoted exclusively to standardization problems.

Members of the American Standards Association receive **INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY** as part of their membership service. The number of copies assigned is determined by the amount of the dues.

Opportunity for full participation in any technical project is in no wise contingent upon financial support.

Membership in the Association is open to organizations having a substantial concern in the work.

All of the files and records of the American Standards Association are open to anyone.

The public nature of the organization and its work has been well summarized by the Secretary of Commerce, Daniel C. Roper, who describes it as "... a unified standardization program in a single movement equally representative of Government, industry, and the general public."

The ASA and Cooperation With Governmental Agencies

Industry and government have reached a high degree of cooperation in their numerous joint activities in the American Standards Association. In undertaking after undertaking they have worked intimately and harmoniously together, both industrial groups and governmental agencies participating according to their facilities and interest in the work at hand.

In its first year the Association was requested by the groups concerned, including state and federal governments, industry, and insurance, to develop a series of national safety codes. Forty such codes are now approved and have been put to extensive use by the states, by industry, and

by casualty insurance companies. They are quoted in whole or in part by 25 of the 34 states which have regulations for the protection of industrial workers. These codes, in fact, now form the backbone of such regulations in this country. They have brought about a large degree of national uniformity among the various states, industry, and insurance groups concerned.

So successful has this safety code program proved that upon request of government, industry, and the public, three series of standards are being developed for use by state, federal, and city governments in the field of industrial and public safety. These include: codes for the prevention of occupational diseases; building codes to provide minimum standards of safety, sanitation, light, and air in buildings; and codes to promote safety in street and highway traffic regulation.

Forty bureaus of the Federal Government are participating in the Association's work. Some of the more active of these are the War and Navy Departments, the Bureau of Mines, the Geological Survey, and the Bureau of Home Economics.

There is an important and intimate relationship between the National Bureau of Standards and the Association. At the request of the Secretary of Commerce a special plan of cooperation has been put into effect in handling the Simplification and Commercial Standards work, under which these standards may be normally advanced to the status of American Standards through approval by the ASA.

With the cooperation of the Bureau, the building code and plumbing code work, formerly carried on by a Department of Commerce committee, has been continued under the procedure of the Association. For these activities a staff engineer is stationed at the Bureau. The Director of the Bureau is a member of the American Standards Association Board of Directors.

The National Screw Thread Commission, established by act of Congress, has been abolished by the President and the work continued by the ASA.

Similarly there is effective cooperation with the state, highway, utility, and traffic administrations. There is active cooperation with the Interstate Commerce Commission with the development of safety standards for buses and trucks which, through work on inspection standards for automobiles, presents an excellent opportunity for the unification of such standards as regards the state and Federal governments.

This record is, so far as I am aware, without parallel in any other movement. I believe that it is worth the careful study of every executive who is interested in cooperative relations between government and industry.

Our Front Cover

The ASA Board of Directors

FOUR new members have just been elected to the Board of Directors of the American Standards Association, shown on the front cover of this issue, and three members have been re-elected.

The new members are: H. P. Charlesworth, assistant chief engineer of the American Telephone & Telegraph Company; W. T. Rossell, vice-president, Brooklyn & Queens Rapid Transit Company; George H. Benzon, Jr., vice-president, Wm. Sellers & Company; and C. E. Pettibone, vice-president, American Mutual Liability Insurance Company. Mr. Rossell has served on the Board before, and was re-elected after a year's absence.

Dr. Lyman J. Briggs, director, National Bureau of Standards, and S. L. Nicholson, assistant to the vice-president, Westinghouse Electric & Manufacturing Company were re-elected.

Mr. Benzon, who was nominated by the National Machine Tool Builders Association, is a director of that organization, and vice-president of a company noted as a pioneer in machine tool building. He has been responsible for the design of many of the machine tools built by Wm. Sellers & Company.

Mr. Charlesworth and Mr. Pettibone have both worked closely with the American Standards Association for some time. Mr. Charlesworth, who was nominated for membership on the Board of Directors by the American Institute of Electrical Engineers, has acted as vice-chairman of the Electrical Standards Committee and as a member of the United States National Committee of the International Electrotechnical Commission.

Mr. Pettibone, nominated by the National Association of Mutual Casualty Companies, has been a member of the Safety Code Correlating Committee since 1929, and is now chairman of its Executive Committee. He is also a member of the Sectional Committee on the Textile Safety Code (L1).

The 18 members of the American Standards Association Board of Directors are now:

Dana D. Barnum, Boston Consolidated Gas Company, Boston, President
Edmund A. Prentiss, Spencer, White & Prentiss, Inc., New York, Vice-President (American Society of Civil Engineers)
Quincy Bent, vice-president, Bethlehem Steel

Company, Bethlehem, Pa. (American Society for Testing Materials)

George H. Benzon, Jr., vice-president, Wm. Sellers & Company, Philadelphia, Pa. (National Machine Tool Builders Association)

Lyman J. Briggs, Director, National Bureau of Standards, Washington, D. C. (U. S. Department of Commerce)

Cloyd M. Chapman, Consulting Engineer, New York (Past-Chairman ASA Standards Council)

H. P. Charlesworth, Assistant Chief Engineer, American Telephone & Telegraph Company, New York (American Institute of Electrical Engineers)

Howard Coonley, president, Walworth Company, New York (Past-President of ASA)

L. A. Downs, president, Illinois Central System, Chicago (Association of American Railroads)

Wallace Falvey, vice-president, Massachusetts Bonding & Insurance Company, New York (National Bureau of Casualty & Surety Underwriters)

J. C. Irwin, valuation engineer, Boston & Albany Railroad, Boston (chairman, ASA Standards Council)

F. E. Moskovics, New York (Society of Automotive Engineers)

S. L. Nicholson, assistant to vice-president, Westinghouse Electric & Manufacturing Company, New York (National Electrical Manufacturers Association)

John C. Parker, vice-president, Consolidated Gas Company of New York, New York (Electric Light & Power Group)

J. Edgar Pew, vice-president, Sun Oil Company, Philadelphia (American Petroleum Institute)

W. T. Rossell, vice-president, Brooklyn & Queens Rapid Transit Company, Brooklyn, N. Y. (American Transit Association)

A. R. Small, president, Underwriters' Laboratories, Chicago (Fire Protection Group)

C. E. Pettibone, vice-president, American Mutual Liability Insurance Company, Boston (National Association of Mutual Casualty Companies)

Government Report Tells About Division of Labor Standards

The official statement of the U. S. Department of Labor describing the organization and work of the Division of Labor Standards was published for the first time in the Twenty-Third Annual Report of the Secretary of Labor, just received by the American Standards Association Library.

"The Division of Labor Standards was created in the Department of Labor primarily to assist the States in moving toward greater uniformity in respect of labor legislation and to aid in developing modern standards for the health, safety, and employment of industrial workers," the report says.

"In line with these purposes, the Division responded to requests for varied services, such as the preparation and distribution of detailed information on accident and disease prevention; analyses and digests of currently proposed labor-law enactments; supplying typical drafts and substantive suggestions on labor-law subjects for use in State legislative programs; informative comparison and appraisal of administrative systems and methods."

The Division of Labor Standards and the American Standards Association are cooperating closely in safety code work. The Division is represented on the Safety Code Correlating Committee, which heads up the ASA safety program, as well as on several ASA safety code committees.

V. A. Zimmer, director of the Division, is also secretary of the International Association of Industrial Accident Boards and Commissions.

League of Women Voters Advocates Grade Labels

A comprehensive statement of the "ultimate consumer" problem is now available from the National League of Women Voters. The booklet, *Government and the Consumer*, prepared and published recently by the League, outlines the consumer's problem and the basic reasons for it, and describes in detail the organizations which are working on the problem and what they are doing to help solve it.

The consumer problem, quality protection (including sections on quality standards, grades and labeling, how standards are established, and standards vs grading), quantity protection, prices and the consumer, consumers' agencies in the Federal Government, and the League's summary of its conclusions are the broad general subjects covered. Bibliographies for further reading are also listed.

"What is needed is a change of emphasis in public thought from production to consumption," the National League of Women Voters points out in its conclusion, "and a new understanding on the part of the public that, since the purpose of all economic activity is the satisfaction of human wants, production and distribution must be carried on with the consumer uppermost in mind."

"The establishment of informative labeling including grade labeling, a new food and drug law with funds and efficient personnel for enforcement, the elimination of price fixing by industry, the development of a coordinated government program of consumer information in regard to both quality and price, the strengthening of the consumer agencies within the government, and, above all, the provision for real consumer representation in the administration of government policies toward industry and agriculture—these seem to be among the most important steps that need to be taken in solving the problem of the consumer."

Copies of the booklet may be obtained from the National League of Women Voters, 726 Jackson Place, Washington, D. C., at 25 cents.

A.S.T.M. Publishes 1935 Proceedings

The 1935 *Proceedings* of the American Society for Testing Materials have now been published in two parts—Part I, committee reports and new and revised A.S.T.M. tentative standards; Part II, technical papers, including the Marburg Lecture.

Reports from 40 standing committees and 136 tentative specifications are published in Part I. The tentative specifications are published in full, in their latest approved form.

In addition to the 37 technical papers presented at the 1935 annual meeting, Part II includes extensive written and oral discussion on these subjects.

The Marburg Lecture on "Aircraft: Materials and Testing" is published in full.

The Symposium on Spectrographic Analysis, also included in Part II, is made up of six technical papers describing methods in current use as applied to various materials—steel, platinum, magnesium, and other non-ferrous materials, graphite electrodes, etc.

Parts I and II of the 1935 *Proceedings* may be purchased at \$5.50 each in stiff paper cover; \$6, cloth; and \$7, half leather, from the American Society for Testing Materials, 260 South Broad Street, Philadelphia.

Proposed Textile Standards Cover Testing, Shrinkage

In addition to the home economics symposium presented at the recent meeting of the American Society for Testing Materials' Committee D-13 on Textile Materials, other significant developments on standards for textiles are commented upon by the *Journal of Home Economics*, December, 1935.

Among these is the work on a Commercial Standard for testing dress fabrics under the procedure of the National Bureau of Standards. Commenting on this proposed standard the *Journal* says:

"A standard of this sort would include procedures for testing such factors as breaking strength, shrinkage, various kinds of color fastness, resistance to dry cleaning and laundering, and yarn slippage, and is an extremely important step toward providing accurate information for the consumer. It has an added interest because it is the first Commercial Standard proposed for a method of testing and reporting products rather than for the products themselves.

"The standard was originally submitted jointly by the Better Fabrics Testing Bureau, Hatch and Reutlinger, and the United States Testing Company, and was discussed at a conference at the National Bureau of Standards on June 22.

"It has since been sent to the interested parties for formal approval, and the announcement of its establishment is likely to be made by the Bureau at any time."

About the work which has been done by a committee under the procedure of the American Standards Association, the *Journal* says:

"How to designate shrinkage in woven cotton yard goods has been under consideration by the industry for over two years.

"A proposed standard for specifications for

A.S.T.M. Committee Symposium Encourages Home Economists

Several recent happenings indicate progress toward giving consumers more reliable information about some of the textiles they buy for personal and household use.

The latest was the home economics symposium that occupied a session of the annual meeting of Committee D-13 of the American Society for Testing Materials in New York City on October 17.

Everyone connected with textile technology knows Committee D-13 as the section of the Society which works on methods of testing textiles, whether in yarn or fabric.

Heretofore it has devoted its attention almost wholly to the problems of manufacturers and large industrial users, and although it has welcomed to membership a few home economists who also know textile chemistry or physics, it has not evinced much concern over the problems they face as representatives of ultimate consumers. For it to give a whole afternoon to such questions marks a most encouraging change.—*Journal of Home Economics*, December, 1935.

designating it was submitted to the American Standards Association in November, 1933; this has undergone review by the technical committees of the latter, and its adoption as an American Standard is expected soon."

New N.E.M.A. Standards Set Up For Power Switching Equipment

The National Electrical Manufacturers Association has just released a new publication, *NEMA Power Switching Equipment Standards*, Publication 35-28, which supersedes the Power Switching Equipment Section of the NEMA Switchgear Standards, No. 31-10 published in 1931.

It contains a large number of new standards, among them several covering insulator units, such as rating, basis of rating, and flashover values for insulator units ranging in voltage from 7500 to 220,000.

Several new standards for testing insulators including standards for cantilever, tensile, compression and torsional strength have been added. A separate section contains definitions for terms used in power switching equipment. There is also a section devoted to installation, care, and operation of power switching equipment.

This is the first of a series of publications which will supersede the various Sections of the Switchgear Standards; others are the Oil Circuit Breaker Standards, Power Switchboard Standards, Distribution Cutout Standards, etc.

Copies of the 48-page publication (with index) may be obtained from the National Electrical Manufacturers Association, 155 East 44th Street, New York City, at 75 cents each.

Four Cities Adopt Compulsory Inspection of Motor Vehicles

Four cities—Memphis, Tennessee; Des Moines, Iowa; Evanston, Illinois; and Billings, Montana—are now operating municipal motor vehicle inspection bureaus to carry out the provisions of city ordinances which require periodical inspection of the safety factors of all trucks and automobiles.

The procedure in all four cities operating inspection bureaus is to require that motor vehicles be brought to the testing station (semi-annually in Evanston and Des Moines and three times a year in Memphis and Billings) where, with the use of modern testing equipment, the brakes, wheel alignment, head lights, rear lights, windshield, windshield wiper, rear view mirror, horn, and steering apparatus are inspected. If the vehicle passes the inspection, which does not take more than five minutes, a sticker is placed on the windshield. Should the car not meet the requirements, the owner must have the necessary repairs made and return the car to the inspection bureau within a stipulated time for reinspection. The annual charge for the examination is \$1, payable in equal installments at the time of each inspection. If the certificate of approval is not given, no charge is made.

The experience with compulsory inspection in Memphis, Evanston, and Des Moines reveals that a large percentage of motor vehicles are defective. In Memphis, 37 per cent of the vehicles were rejected during the first six months. In Des Moines 50 per cent failed to pass the first inspection and in Evanston 66 per cent did not meet the requirements. In the latter two cities the second inspections showed nearly as large a per cent defective as during the first period, indicating a need for frequent inspection. Faulty brakes were discovered to be the chief cause for rejection, with faulty head lights in second place. —*Public Management, December, 1935.*

Calibrated Plaques Test Enamel Reflectance Values

A test procedure, which includes a method of measuring reflectance of enamel, was submitted recently to the Porcelain Enamel Institute by the National Bureau of Standards, and was adopted by the Institute as a tentative standard. The standard also specifies a method of analyzing reflectance data to obtain the two fundamental reflectance constants of enamels, and a basis for classifying commercial enamel frits according to their reflectance characteristics.

Enamelled plaques, in sets of 10 calibrated areas, have been prepared by the National Bureau of Standards as a result of its cooperation with the Porcelain Enamel Institute in developing standard tests. These have been sent to laboratories which have cooperated in the tests on reflectance standards. The use of these comparison standards, covering a range of reflectance from 50 to 87 per cent, constitutes a major step in bringing reflectance readings obtained in different laboratories to a common basis. Additional sets of enamelled plaques will be calibrated as reflectance standards by the Bureau for those who desire them, upon payment of a fee.

Will Investigate Important Factors In Standard Tests for Molding Sand

The National Bureau of Standards in its cooperation with the American Foundrymen's Association Committee on Molding Sand Research continually encounters new problems in the field of molding sand testing. Some interesting questions regarding the standard equipment and methods of test used in measuring the compressive strength of a molding sand have been recently introduced. It has been pointed out repeatedly that a variation in length between the tolerance limits will affect strength measurements made on the cylindrical specimens of molding sands. The method of preparing the specimen and the condition of the specimen container will also affect the results.

In cooperation with a subcommittee of the Committee on Molding Sand Research, an investigation is planned at the Bureau in order to determine the importance of the various factors that influence the results of the strength test. Proper maintenance of all testing equipment and the development of careful laboratory technique will be essential in order to obtain accurate and consistently reliable results.

C. E. Ayres Named Director of U. S. Consumers' Division

Clarence E. Ayres, educator and writer, was appointed director of the Consumers' Division of the Department of Labor to succeed Walton H. Hamilton. Mr. Hamilton was recently transferred to the social security board to head the Bureau of Research and Statistics.

The Consumers' Division, which was originally a division of the National Recovery Administration, was transferred to the Department of Labor after the NRA was formally disbanded early this year.

Basic Data for Exhaust Systems Will Be Used for Safety Codes

by

Theodore Hatch¹

*Chairman, Subcommittee on
Fundamentals, ASA Exhaust
Code Committee*

Lack of Adequate Information Shows Need for Research to Insure Efficient Installations for Control of Dusts and Gases

EXTENSIVE investigations in recent years of the manifold problems of industrial hygiene have greatly increased our understanding of the health hazards to which the worker is exposed, and have shown the necessity for adopting more exacting requirements with respect to hygienic and sanitary conditions in industry. It is no longer safe to evaluate atmospheric conditions by visual inspection alone, nor can we depend entirely upon empirical methods for the design and operation of control equipment.

One important means of control which requires more fundamental and exact design is local exhaust ventilation. This method is used more widely than any other for the control of toxic,

explosive, or otherwise harmful dusts, fumes, vapors, and gases in industry. Most state industrial codes include certain requirements for the design of exhaust systems, but these specifications are based largely upon conditions in a limited number of industries and are not adequate to meet the needs of the great variety of processes to which local exhaust ventilation is being applied today.

The American Standards Association has undertaken to develop new exhaust codes to meet

¹School of Public Health, Harvard University.

Subcommittee's Report Sets Exhaust System Principles

Danger to industry from dust explosions and dust diseases is now being recognized as one of the outstanding industrial problems of the present day. The most important measure to curb this hazard is the installation of effective exhaust systems to remove at the source the toxic, explosive, or otherwise harmful concentrations of dusts, fumes, mists, vapors, and gases.

Although different industrial processes require different treatment for the removal of dusts and fumes, certain re-

quirements are fundamental to all exhaust systems.

In preparing its first preliminary report on fundamental requirements, the Subcommittee on Fundamentals of the ASA Sectional Committee on Safety Code for Exhaust Systems has analyzed these common requirements and has prepared an outline of the basic specifications necessary for efficient dust and fume removal.

It is expected that, when finally approved, this basic code on fundamental requirements will be used as background material for more detailed safety codes for design and installation of exhaust systems for individual processes.

Subcommittee of Experts Prepared Basic Report

When the Sectional Committee on Safety Code for Exhaust Systems decided that the success of its work depended upon an analysis of the basic principles underlying efficient design and installation of all exhaust systems, it appointed a subcommittee to study the problem and prepare a report on these fundamental principles.

This subcommittee, which has just submitted its first preliminary report, is made up of the following members:

Theodore Hatch, School of Public Health, Harvard University, *Chairman*
M. I. Dorfan, Blaw-Knox Company
W. M. Graff, National Bureau of Casualty and Surety Underwriters
Leonard Greenburg, Pierce Laboratory of Hygiene, Yale University
J. C. Hardigg, Consulting Engineer
H. M. Nichols, B. F. Sturtevant Company
W. L. Keplinger, Carrier Engineering Corporation
G. E. Sanford, General Electric Company
R. R. Sayers, U. S. Public Health Service
S. E. Whiting, Liberty Mutual Insurance Company

The International Association of Industrial Accident Boards and Commissions has the administrative leadership for the work of the sectional committee.

present-day requirements and for this purpose has organized the Sectional Committee on Safety Code for Exhaust Systems (Z9). This committee proposes to develop separate standard specifications for each industry or process and has formed or projected several subcommittees to deal with a number of industries. In addition, a subcommittee on fundamentals was appointed to formulate and arrange in useful form those basic requirements and principles of design common to all exhaust systems.

Committee Finds Lack of Data

The work of this subcommittee, as shown in its report, just issued, is primarily important because it points out the lack of any considerable amount of basic data pertaining to exhaust systems, particularly with respect to the design of exhaust hoods, and emphasizes the need for a great deal of investigation. This does not mean that no successful exhaust systems are in operation today.

On the contrary, a good many efficient installations have been made, although it has not been common practice to describe them in basic engineering terms in the technical literature. New installations have not been tested to determine the degree of control effected and it is therefore impossible to separate the efficient from the poor system and explain the division on the grounds of correct or improper design. Because the considerable past experience has not been critically evaluated and made generally available to designing engineers, personal experience still remains the principal guide to design.

The subcommittee on fundamentals has attempted to assemble in ordered fashion the fundamental concepts and data available at the present time and to indicate the manner in which these influence the method of design. The next step is to analyze existing systems critically, to separate the good from the bad, and summarize in useful form the basic data which determine proper design. The adoption of fundamental methods of design and the systematic analysis of results accomplished are necessary to build up a body of technical experience to serve as a guide for future design.

Engineering Details Covered

The body of the subcommittee report deals with engineering details of design which are presented under six main headings: plant layout and building construction, exhaust hoods, exhaust piping, air-cleaning plant, source of suction, construction and maintenance.

The greatest attention is given to hood design because the exhaust hoods contribute more to the success or failure of the system than any other part. It is pointed out that the air motion around the processes is chiefly responsible for the dispersion of the contaminating material. The primary function of the exhaust hood, therefore, is to collect the contaminated air rather than to remove the contaminant from the air and the first effort must be directed toward the reduction of the magnitude of air motion so that the exhaust hood itself will have to do the least amount of work.

The concept of air motion as the principal force of dispersion is important because it directs attention at once to the primary point of attack. Failure to reduce the air motion by eliminating or otherwise controlling the sources of air movement greatly increases the required size of the exhaust system and cost of operation and reduces its efficiency.

The exhaust hood creates air motion from the zone of generation of the contaminating material toward the suction opening. At any point the

velocity thus created must be great enough to overcome the outward movement of contaminated air. The basic specification with respect to hood design is therefore the minimum air velocity at the point of contamination necessary to capture the contaminated air. The report points out the lack of data pertaining to the air velocity requirements of the many industrial processes and indicates the manner in which such information may be obtained.

Subcommittee Recommendations

Several important conclusions and recommendations of the subcommittee may be mentioned:

(a). It is recommended that the static suction index, commonly employed to define exhaust hood operation, be abandoned in fundamental codes because it is not a basic specification. Its use arises from the fact that it determines in part the rate of airflow into the hood. But in this respect the area of the connecting pipe and the shape of the hood are more important determining factors.

(b). The measurement of the concentration of contaminating material in the plant atmosphere and in the discharge area of the exhaust system constitutes the basic means of determining the effectiveness of control secured. The subcommittee believes that sufficient data are avail-

able pertaining to permissible concentrations of many industrial contaminants, and that methods of analysis are sufficiently well standardized, to warrant the use of maximum allowable levels of concentrations as the basic requirement of the degree of control to be maintained by an exhaust system.

(c). A few tests of atmospheric conditions at the outset of plant operations cannot be relied upon, however, to give a true measure of the quality of control over a long period of operation. It is essential to make certain that the design of the system is fundamentally sound, that the system is operating in accordance with the instruction of the designing engineer and the manufacturer of the equipment, and, finally, that the system be properly maintained.

(d). Methods of construction should be governed to a greater extent by the question of subsequent maintenance than by initial cost. As an engineering structure, an exhaust system should command as much care in its operation and maintenance as any other part of the plant equipment. The use of light-weight construction and improper protection of the equipment are not conducive to this end.

(e). Whenever possible, the manufacturer of plant machinery should incorporate suitable exhaust hoods in the original machines. Consideration of the problem of exhaust ventilation before a machine is built will result, in most cases, in a more satisfactory solution than is given by the compromise that must usually be adopted when the exhaust hood is added to the machine after it is installed.

Propose International Committee To Standardize Machine Tools

The American Standards Association has just received a proposal for the organization of a new International Standards Association technical committee to bring about international unification of machine tool standards.

The proposal, and a memorandum supporting it, received from the German national standards association (Deutscher Normenausschuss), has been referred to the Mechanical Standards Committee of the ASA.

The American Standards Association is one of the 19 national standardizing bodies which are members of the International Standards Association.

The Mechanical Standards Committee has been asked to advise the American Standards Association what answer it should make on the following questions:

1. Does American industry favor the organization of an ISA technical committee on Machine Tools?
2. Will it take an active part in the work of this committee, if organized?

Others asked to advise the American Standards Association on these questions are the members of the ASA Sectional Committee on Small Tools and Machine Tool Elements, and the three sponsors of the committee—the American Society of

Mechanical Engineers, the Society of Automotive Engineers, and the National Machine Tool Builders Association.

Simplified Practice Recommendations Are Reaffirmed, Bureau Announces

The following Simplified Practice Recommendations have been reaffirmed without change, according to an announcement of the Division of Simplified Practice, National Bureau of Standards:

Asbestos Paper and Asbestos Millboard R19-28	5 cents
Ash Handles R76	5 cents
Hospital Beds R24	Free—Mimeographed
Beds, Springs, and Mattresses R2-32	5 cents
Metal and Fiber Flashlight Cases R68-33	5 cents
Packaging of Carriage, Machine, and Lag Bolts R60-30	5 cents
Wrought-Iron and Wrought-Steel Pipe, Valves, and Fittings R57-32	5 cents

Copies of all these printed documents may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the price indicated. The mimeographed recommendation may be obtained without charge from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

Preferred Numbers Would Simplify Wire, Sheet-Metal Gage Systems

by

J. I. Hommel

*Material and Process Engineering Department,
Westinghouse Electric & Manufacturing Company*

Tables Show How System of Logical Progression of Numbers Could Be Applied to Coordinate Existing Gage Practice

THREE tables, illustrating how the Preferred Numbers system, which is now being considered by the American Standards Association for final approval, can be used to establish an orderly general system of wire and sheet metal gages to replace the various conflicting systems now in existence, are shown in part in the cut on page 65.

The gage numbers in common use today have been developed in a somewhat haphazard manner in practice and do not indicate directly what diameter or thickness is meant. They comprise a series of symbols consisting of seven zeros down to one zero, and the numbers from 1 to 80, inclusive, representing dimensions from 0.001 to 0.600 in. Furthermore, in the Twist Drill and Steel Wire Gage System, the letters from A to Z are used for sizes upward from .234, instead of 0 to 0000000 for sizes upward from .313.

In the existing systems, in some cases a given gage number will indicate a certain wire diameter or sheet thickness for one type of material and for another material will indicate a different diameter or sheet thickness.

The most commonly used systems and their principal applications are shown in the table in the next column.

Some of the difficulties in the use of these systems are evident from the fact that not less than eight manufacturers of piano wires developed their own music-wire gage systems, all of which differed in some points, the same number indicating a different size in each system, in certain cases.

The decimal equivalents of gage numbers in

the U. S. Standard Gage are different depending upon whether the gage applies to iron or to steel. The fact that there is no sharp demarcation line between these two materials increases the difficulties.

Also, when it is necessary to substitute one material for another, it is often necessary to use a different thickness of material, because the thickness of the original material does not form part of the gage system of the new material.

However, the main difficulty with the existing gage systems is that—with one exception, the American Wire Gage System—they lack a logical progression. The trouble with most of these systems is that they just grew up on the basis of the

Table Showing Most Commonly Used Gage Systems

<i>Name</i>	<i>Abbreviation</i>	<i>Application</i>
Am. Std. Wire Gage or Brown & Sharp	AWG or B & S	Non-Ferrous, Sheet, Wire Strap Steel Banding Wire
Birmingham or Stubs' Iron Wire Gage	BWG	Spring Steel (narrow strips) Wall tks of non-ferrous metal tubing
National, Roebling Washburn & Moen Am. Steel Wire Co.	NWG	Steel Spring Wire & Tie Wire, Spring Wire above .090 diam.
U. S. Standard Gage	USG	Iron & Steel Sheet
Music Wire Gage (Trenton or Wolff's Music Wire)	MWG	Spring Wire up to .090 diam.

Table 1

Comparison between B&S, BWG, NWG, USG, and MWG systems, and Preferred Numbers, 20-series

20-SERIES	B & S	PER CENT DIFF	BWG	PER CENT DIFF	NWG	PER CENT DIFF	USG	PER CENT DIFF	MWG	PER CENT DIFF
.50					0000000 .490	+2.0	0000000 .500	0		
.45	0000 .460	-2.2	0000 .454	-.9	000000 .460	-2.2	000000 .469	-4.1		
			000 .425	+5.9	00000 .430	+4.6	00000 .438	+2.7		
			000 .425	-5						
.40	000 .410	-2.4			0000 .394					
.355	00				000 .353					

Table 2
Comparison of SWG and TDG systems, and Preferred Numbers, 40- and 80-series

PREFERRED NUMBERS	SWG	PER CENT DIFF	TDG	PER CENT DIFF
40-SERIES	80-SERIES			
.315	.307		0 .316	-.3
			--	
			N .302	-.7
			M .295	+1.7
			L .290	0
.300	.290		K .281	-.4
			J .277	+1.1
			I .272	0
.280	.272		H .266	-.4
			G .261	+1.5
			F .257	0
			E .250	0
.265	.257		D .246	-1.2
			C .242	+.4
			B .238	-.8
			A .235	+.9

Table 3
Difference in size increments between TDG and SWG systems and Preferred Numbers, 80-series

NO.	TDG	INCR	SWG	INCR	PREF. NO. 80-SERIES	INCR
.413	.413	.009	.413	.009	.412	.012
.404	.404	.007	.404	.007	.400	.013
.397	.397	.011	.397	.011		
.386	.386	.009	.386	.009	.387	.012
.377	.377	.009	.377	.009	.375	.010
.368	.368	.010	.368	.010	.365	.010
.358	.358	.009	.358	.009	.355	.010
.348	.348	.009	.348	.009	.345	.010
.339	.339	.007	.339	.007	.335	.010
.332	.332	.007	.332	.007	.325	.010
.323	.323	.014	.323	.014	.315	.010
.316	.316	.007	.316	.007	.307	.008
.302	.302	.007	.302	.007	.300	.007
.295	.295	.005	.295	.005	.290	.010
.281	.281	.005	.281	.005	.280	.010
.277	.277	.004	.277	.004		
.266	.266	.005	.266	.005		
.257	.257	.005	.257	.005		
.246	.246	.005	.246	.005		
.238	.238	.005	.238	.005		

Sections of Tables Illustrating How Preferred Numbers Could Replace Existing Gage Systems

dies and other equipment used by individual manufacturers, or that they resulted from isolated requirements of users.

The most logical system of building up a series of gage sizes is one where successive steps increase according to a geometric ratio. The only existing system in which this has been done is the American Wire Gage System where the members step up in a geometric ratio of 1.123, or approximately by 12 per cent. The basic size is number 36 wire, the diameter of which is 0.005 in.

In the Preferred Numbers system now under consideration for approval as American Standard, the basic value is 1. Five series have been developed in which the members step up in the ratio $\sqrt[5]{10}$, $\sqrt[10]{10}$, $\sqrt[20]{10}$, $\sqrt[40]{10}$, $\sqrt[80]{10}$ or by about 3, 6, 12, 25, and 60 per cent, respectively.

Tables have been prepared in which the values of several existing gage systems are compared with Preferred Numbers close to them. The idea is that the several systems now in existence might well be replaced by a single system based on the Preferred Numbers.

Table 1 gives such a comparison between the B & S, the BWG, the NWG, and the USG systems on the one hand, and the 20-series (ratio about 12 per cent) of Preferred Numbers on the other. The decimal inch equivalent is given below each gage number and the difference between the decimal equivalent of the gage number and the Preferred Number proposed to replace it is given as a percentage in the next column on the right-hand side.

Table 2 gives a similar comparison between the SWG and TDG systems, and the 40- and 80-series of Preferred Numbers. The small steps of these

Complete Tables Are Available

The complete tables showing the application of the Preferred Numbers system to the Wire and Sheet-Metal Gage Systems are available, free, from J. I. Hommel, Material and Process Engineering Department, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., or from the American Standards Association Library.

series are required here to approximate the values of these two existing systems. The gage symbol (letter or number) is given here in front of the corresponding decimal inch value.

Table 3 gives a comparison between the increments in size of the SWG and TDG systems, and those of the Preferred Numbers series.²

The complete tables show that the difference between the value of an existing gage number and a preferred number proposed to replace it may be as high as 5.3 per cent. However, it should be realized that commercial sheet steel often varies as much as 11 per cent in thickness, unless a considerably smaller tolerance is specified. Therefore, the proposed change will cause little disturbance.

French Society Names Kennelly To Receive Mascart Medal

A. E. Kennelly, professor emeritus of electrical engineering at Harvard University and Massachusetts Institute of Technology, and chairman of the ASA committees on Definitions of Electrical Terms and on Electric and Magnetic Magnitudes and Units was recently awarded the Mascart Medal by the Societe Francaise des Electriciens.

The Medal, which is awarded every three years by the French electrical society, was given Dr. Kennelly because of his contributions to pure science and for his services on the international committees whose efforts culminated last summer in the adoption of the meter-kilogram-second system of units by the International Electrotechnical Commission.

²The three tables referred to here are too extensive to be reproduced in full in this article. A limited number of copies of these tables are available, however, free for those interested. Please address R. E. Hellmund, Chief Engineer, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., or the American Standards Association Library.

The international committee in charge of the work on electric and magnetic magnitudes and units, which adopted the MKS system, is under the direction of the United States National Committee of the IEC. Dr. Kennelly, who is honorary president of the IEC, is also chairman of this committee.

The membership of the United States National Committee and that of the Electrical Standards Committee, in charge of the electrical standardization work of the American Standards Association, is closely linked and the two committees work together to bring about cooperation on international and national electrical problems.

Dr. Kennelly is the first United States scientist to receive the Mascart Medal.

Simplify Paper Towel Varieties, Packaging

A proposed Simplified Practice Recommendation for Paper Towels has been mailed to producers, distributors, users, and others interested for their consideration and approval, according to an announcement of the Division of Simplified Practice of the National Bureau of Standards.

The recommendation, which applies to towels other than those sold at retail, consists of three tables covering Standard Fold, Special Fold, and Roll Towels. Each table gives qualities, basis weights, sizes, and number of towels per case.

The recommendation was submitted by the manufacturers of paper towels, acting through the Association of Manufacturers and Converters of Tissue, and distributors, acting through the National Paper Trade Association.

Copies of the proposed recommendation, which includes history and development of the proposal, may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

Committee Asks ASA to Approve Preferred Numbers Standard

A proposed American Standard for Preferred Numbers, developed by the ASA Sectional Committee on Preferred Numbers (Z17), is now under consideration for final approval by the American Standards Association.

The Preferred Numbers referred to in this article (p. 64) are taken from this proposed American Standard series.

Develops New Method to Test Thickness of Plated Coatings

An ingenious method of measuring the thickness of electroplated coatings will make it easier to follow recently adopted specifications requiring a minimum thickness on significant parts of a plated surface. Former specifications only required an average thickness.

The application of the new specifications depends upon the determination of thickness at different parts of the surface. This is usually done by microscopical measurements of metallographic cross sections, a procedure that is laborious and time consuming, and that destroys the test specimen.

The new method was suggested by F. C. Mesle, according to the February issue of the *Technical News Bulletin*, published by the National Bureau of Standards, for measuring the thickness of silver on teaspoons, especially on the outside of the bowl where a greater thickness or "overlay" is often applied. The same principle can be used to measure coatings on flat surfaces. If a coating on a curved surface is just cut through with a flat file, or that on a flat surface is cut through with a grinding wheel of known radius, the thickness of the coating can be computed from the equation $T = \frac{C^2}{8R}$

where T is the thickness, C is the chord, that is, the width of the cut, and R is the radius of the curved surface or of the grinding wheel.

To apply the method to a practically plane surface, the latter is tilted slightly, so that a tapering cut is produced when the surface is passed under the grinding wheel in a direction parallel to its axis. The chord is then measured just at the point where the base metal is exposed. This procedure is especially valuable for measuring the individual layers in multiple coatings, such as of nickel, copper, and nickel on steel.

For testing deposits on soft base-metals such as copper, brass, and zinc-base die-castings, a wheel with a relatively coarse grain, such as a 90-grain, is preferable. On steel, a 120-grain wheel gives sharper cuts. The width of the cut is measured with a lens and scale.

Tests made on specimens plated with known thicknesses showed that the method is accurate to about 10 per cent on coatings at least 0.002 inch (0.005 mm) thick. It is a much more rapid method than the metallographic examination, and under favorable conditions the results are almost as accurate. In general the tested specimen can

be salvaged by stripping, polishing, and replating. This is an advantage in testing large pieces such as bumper-bars. It is hoped that after thorough trial this method will prove useful in testing plated products for compliance with specifications.

A more complete account of this work will be found in RP866 in the February number of the *Journal of Research*, National Bureau of Standards.

Asks ASA to Approve Standard on Book Cloths

The Commercial Standard for Book Cloths, Buckrams and Impregnated Fabrics (for Book-binding Purposes Except Library Bindings), CS57-36, has been submitted by the National Bureau of Standards to the American Standards Association for approval.

The requirements and the test procedures given in the standard apply to book cloths and buckrams which are starch filled, and to the so-called impregnated fabrics used in the book-binding industry for edition, textbook, trade, catalogs, and all other than library bindings.

The Employing Bookbinders of America, the Book Manufacturers' Institute, and the Institute of Book Cloth and Impregnated Fabrics Manufacturers requested the cooperation of the National Bureau of Standards in establishing this Commercial Standard and its submittal to the American Standards Association.

Copies of the standard may be obtained from the Division of Trade Standards, National Bureau of Standards, Washington, D. C.

Canadian Association Sets Steel Standards

A series of standard specifications for structural steel in bridges and buildings, compiled and approved by the Canadian Engineering Standards Association, has been received by the American Standards Association.

The specifications cover mild structural steel, medium structural steel, structural silicon steel, and structural rivet steel.

They are 25 cents each, or \$1.00 for the complete series, and may be ordered through the American Standards Association Library.

Submits Simplified Practice on Coarse Aggregates to Industry

The National Bureau of Standards is now canvassing industry for acceptance of a proposed Simplified Practice Recommendation for Coarse Aggregates (Crushed Stone, Gravel, and Slag). The Recommendation consists of a series of tables setting up sizes for coarse aggregates, and indicating typical uses for the recommended sizes.

It was prepared by the Joint Technical Committee of Mineral Aggregates Associations, which includes representatives from the three principal associations of producers of mineral aggregates—the National Crushed Stone Association, the National Sand and Gravel Association, and the National Slag Association.

In its statement concerning the development of the proposed Simplified Practice Recommendation, the Joint Technical Committee said:

"The development of generally acceptable standard sizes for aggregates has been an important aim of producers and users of crushed stone, sand and gravel, and slag for many years. As early as 1920 a tentative 'Specification for Commercial Sizes of Sand and Gravel for Highway Construction' (A.S.T.M. D64-20T) was published by the American Society for Testing Materials and in 1923 that Society published a tentative Specification for Commercial Sizes of Broken Stone and Broken Slag for Highway Construction (A.S.T.M. D63-23 T). These tentative specifica-

tions did not receive enough support to warrant their acceptance as standards.

"During the period from about 1924 to 1930 the three associations of aggregate producers, the National Crushed Stone Association, the National Sand and Gravel Association, and the National Slag Association, carried out work independently, looking toward the development of standard sizes. It soon became evident, however, that in order to make this work more effective it would be necessary for the three associations to coordinate their efforts. To handle this problem and other common technical problems, the Joint Technical Committee of Mineral Aggregates Associations, made up of representatives from the three associations, was formed, and in 1930 that committee undertook the development of joint recommendations for standard sizes.

Committee Members

"The membership of the committee is:

A. T. Goldbeck, Director, Bureau of Engineering, National Crushed Stone Association
Fred Hubbard, Director of Research, National Slag Association
H. J. Love, Managing Director, National Slag Association
Stanton Walker, Director, Engineering and Research Division, National Sand and Gravel Association.

"An important obstacle which had prevented the acceptance of any of the standards heretofore proposed was the fundamental matter of methods of measuring the size of aggregates. Some engineers preferred round opening laboratory screens, and others square opening sieves. For a long time specifications for concrete aggregates generally had been written in terms of square openings while those for bituminous road work had been expressed, for the most part, in terms of round openings. Gradually, many of the state highway departments in which round opening screens had previously been used have adopted square openings as have many other important standardizing bodies. With this trend the principal obstacle to the standardization of sizes is rapidly disappearing and it is felt that now is an appropriate time to present proposed standards for the consideration of producers and users of mineral aggregates."

A paper, presented by Stanton Walker, Director of Engineering and Research Division, National Sand and Gravel Association, and member of the committee, at the Twentieth Annual Convention of the National Sand and Gravel Asso-

Immeasurably Valuable, Official Says of ASA Building Code Committee

The accomplishment of the objectives of the recently organized Building Code Correlating Committee under the procedure of the American Standards Association should prove of immeasurable value, not only to the building official, but to the building public as well.

Renewed activity in the formulation of a uniform building code, which work was initiated by the United States Department of Commerce, deserves the co-operation and encouragement of everyone connected with the building industry.—William J. Ennis, Building Supervisor, City of Hartford, Connecticut.

ciation, January 27 to 30, 1936, discussed the proposed recommendation in detail. This paper is available from the National Sand and Gravel Association, Munsey Building, Washington, D. C.

Copies of the proposed Simplified Practice Recommendation for Coarse Aggregates may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington.

Develops New Alloy for Wire in Electrical Resistance Standards

An alloy of copper, manganese, and aluminum has been found by the National Bureau of Standards to be superior in several respects to manganin as a resistance alloy for the wire-wound standards which maintain the unit of electrical resistance in the national standardizing laboratories. Manganin, an alloy of copper, manganese, and nickel, is generally used. For use in the construction of precision standards, alloys must be very stable in resistance. In addition to stability, they should have low temperature coefficients of resistance and small thermoelectric powers against copper.

The best proportions of the three metals in the new, superior alloy were found to be approximately: Copper, 85 per cent; manganese, 9.5 per cent; and aluminum, 5.5 per cent. When properly baked, coils of wire made of this material have smaller temperature coefficients of resistance, and smaller thermoelectric powers against copper, than manganin. This alloy appears to be as stable in resistance as is manganin, but it undergoes a large change in resistance with baking, and the baking time and temperature must be carefully controlled.

The use of copper-manganese-aluminum resistance alloys is not new, as Therlo is an alloy of this type. However, the best composition has not been determined before, nor have detailed data been available. A complete description of the method of preparation and data obtained for these alloys is published in the February issue of the *Journal of Research* (RP863).

Suggests Revised Simplification For Coated Abrasive Products

Copies of a proposed revision of Simplified Practice Recommendation R89-32, Coated Abrasive Products, have been mailed to those interested, for consideration and approval, by the Division of Simplified Practice, National Bureau of Standards.

The revision covers certain additions, elimina-

Soil Pipe Standard Is Now Available

The recently approved American Standard for Cast-Iron Soil Pipe and Fittings (A40.1-1935) has now been published. The standard is a 48-page book, including definitions and diagrams, and tables showing weights and dimensions for the various sizes of pipe and fittings included.

A subcommittee on Cast-Iron Pipe and Fittings of the ASA Sectional Committee on Standardization of Plumbing Equipment has been at work on this standard since 1928. Wide distribution was given the various drafts of the proposal by the subcommittee, and the comments and criticisms received were used in preparing the final standard.

Members of the subcommittee are:

Joseph J. Crotty, vice-president, The Central Foundry Company, New York, *Chairman*

F. R. McCarron, Somerville Iron Works, Somerville, N. J., *Secretary*

C. A. Hamilton, president, Alabama Pipe Company, Anniston, Ala.

A. Hansen, manager of plants, Essex Foundry, Newark, N. J.

J. D. Johnson, Jr., president, J. D. Johnson Company, Inc., New York

W. J. Kirby, secretary and treasurer, Somerville Iron Works, Somerville, N. J.

L. F. Moore, president, Walker Machine and Foundry Corp., Roanoke, Va.

F. H. Morehead, vice-president and chief engineer, Walworth Company, New York

T. H. Powers, president, Salem Brass & Iron Manufacturing Company, Bridgeton, N. J.

The American Society of Sanitary Engineering and the American Society of Mechanical Engineers were responsible for the administrative leadership for the work of the committee.

Copies of the standard are available from the American Standards Association Library at 65 cents.

tions, and changes in classification, to meet current needs, in the simplified lists for flint and emery-coated abrasives and coated abrasives other than flint and emery, established in the original recommendation. These lists include type of backing, size of sheet, type of coating, and grade number for each class of goods.

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